AMENDMENTS TO THE CLAIMS

1–20. (Cancelled)

21. (Previously and Currently Amended) ~~A n~~Network architecture for accelerating execution of a program having one or more algorithms ~~used by an entity~~, comprising:

5   a computer connected to ~~the Internet~~ a network;

      ~~a library, associated with the computer, accepting requests to accelerate processing of at least one function of the program;~~

      a distributed cluster of nodes connected to the computer through the ~~Internet~~network; ~~and~~

      a library, associated with each node ~~the computer~~, accepting requests to accelerate processing

10   of the algorithms ~~at least one function of the program~~; and

      ~~an ISP~~ a controller having protocol software to engage the nodes ~~connected to the ISP~~ to process the algorithms ~~function~~ and return a result to the computer, the controller and nodes having a priori knowledge of logical connections between the nodes to accelerate parallel processing of data therebetween, the controller and cluster being

15   arranged as a Howard Cascade.

22. (Cancelled)

23. (Currently Amended) ~~A~~ The network architecture of claim 22, ~~wherein the cluster comprises a heterogeneous cluster~~ the Howard Cascade ensuring data connections between nodes of the cluster are available when needed.

20   24. (Currently Amended) ~~A~~ The network architecture of claim 22, ~~wherein the cluster comprises at least six computers connected by a network~~ the Howard Cascade balancing timing between nodes of the cluster to decrease serial operation and data collisions between the nodes.

25. (Currently Amended) ~~A~~The network architecture of claim ~~21~~24, ~~wherein the cluster accepts the function through the Internet~~ the nodes being balanced such that data transferred between

25 nodes, over a time period, is of equal size, and wherein a cascade depth and a cascade width of the Howard Cascade are equal during parallel processing of the data.

26. (Currently Amended) ~~An ISP, comprising:~~

      ~~a plurality of users connected in cluster to distribute processing functions among the cluster; and~~

30   ~~software to facilitate distributed processing of a function among the cluster~~The network architecture of claim 24, the nodes being balanced such that data transferred between nodes, over a time period, is of unequal size, corresponding to heterogeneous processing speed of the nodes.

27-32. (Canceled)

35   33. (New) A parallel processing system, comprising:

      a home node arranged as a Howard Cascade;

      a plurality of nodes; and

a switch operable to switch data connections between the nodes, the home node connected with the switch and operable to distribute algorithms of a program among the nodes for parallel processing, the home node selecting communication between the nodes based upon the algorithms and without the program having knowledge of the communication.

34.   (New) The system of claim 33, wherein a cascade depth and a cascade width of the Howard Cascade remain equal during parallel processing.

35.   (New) The system of claim 33, wherein internodal communication between the nodes comprises TCP/IP, or any other standard communication protocol.

36.   (New) The system of claim 33, wherein the nodes comprise homogeneous processing speed and are balanced such that data transferred between nodes, over a time period, is of equal size.

37.   (New) The system of claim 33, wherein the nodes comprise heterogeneous processing speed, wherein data transferred between nodes, over a time period, is of unequal size, which to balance the total computation and communication time.

38.   (New) The system of claim 34, wherein the nodes process one or more threads during parallel processing of a program.

39.   (New) The system of claim 38, each of the threads having an identical set of functional capabilities.

40.   (New) The system of claim 38, the threads deriving from a plurality of jobs.

41.   (New) The system of claim 33, the nodes comprising heterogeneous computers.

42.   (New) The system of claim 33, the nodes comprising homogeneous computers.

43.   (New) The system of claim 33, wherein each node has a free data connection for internodal communication to avoid data collision.

44.   (New) The system of claim 33, wherein each of the nodes is operable to determine whether called nodes function properly.

45.   (New) The system of claim 44, wherein each of the nodes detects non-receipt of a message to determine malfunction of the lower-hierarchy called nodes.

46.   (New) The system of claim 33, the home node operable to distribute data and algorithms among the nodes such that as many nodes as possible are utilized and such that each of the nodes consumes the least number of threads.

47.   (New) The system of claim 33, the home node distributing data and functions among the nodes with predetermined cascade depth and width, to process a predetermined number of threads per node .

48.   (New) The system of claim 33, the nodes being arranged as a Howard Cascade, each node comprising a library of functions that are processed by the Howard Cascade.

49.   (New) The system of claim 48, the library comprising a Dynamic Link Library.

50.   (New) The system of claim 33, the home node distributing a program among the nodes such that data connections between nodes are available for use at a predetermined time.

51.   (New) A method of parallel processing a program, comprising:

distributing a program among a plurality of nodes having identical library functions; and

5   balancing computational load among the nodes; and

communicating between the nodes to increase communication bandwidth of parallel

processing of the program.

52.   (New) The method of claim 51, further comprising arranging the nodes as a Howard Cascade.

10   53.   (New) The method of claim 51, further comprising communicating among the nodes through TCP/IP.

54.   (New) The method of claim 51, the step of distributing comprising distributing data such that a minimum amount of time is used to move data among the nodes.

55.   (New) The method of claim 51, further comprising utilizing a switch to

15   communicate data and functions among the nodes.

56.   (New) The method of claim 51, further comprising utilizing direct connections between nodes to communicate data and functions among the nodes.